TWO NEW PLANTS FROM THE TERTIARY ROCKS OF THE WEST

By T. D. A. Cockerell

Smilax labidurommæ sp. nov.

Leaf 53 mm. long and 35 wide; deltoid, with truncate base, the lateral margins nearly straight, but under a lens showing shallow crenulation; five principal longitudinal veins.

Miocene shales, Florissant, Colorado, Station 14 (*Wilmatte P. Cockerell*). On the same slab, three mm. from the leaf, is an earwig, *Labidiuromma bormansi* Scudder. The genus *Smilax* and the family Smilaceæ are new to the Florissant list, but various species of *Smilax* have been found in other American formations. **Smilax carbonensis** n. n. (*S. grandifolia* Lesq., Tertiary Flora, Pl. IX, f. 5, from Carbon, Wyoming) is a larger leaf, with cordate instead of truncate base, and convex lateral margins. It is probably quite distinct from *Smilacites grandifolia* Unger,* which as originally figured by that author, has the basal sinus very deep (over 30 mm.); and in any event *S. grandifolia* Buck-

* Chloris Protogaea, pl. XL, f. 3.

ley* antedates Unger's name by about four years. In the determination of *Smilax* leaves there is indeed a large element of uncertainty, owing to the variation in outline, as Laurent† has beautifully illustrated in the case of *S. aspera*. This should prevent us from multiplying specific names based on different

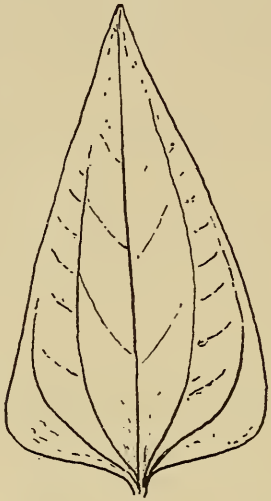

FIG. 1. *Smilax labidurommæ* Cockerell.

looking leaves of the same region and period, but on the other hand, it should not lead us to consider identical plants of quite different parts of the world and different geological horizons. Something must be allowed for the inherent probabilities in each case. Knowlton‡ has described *Smilax lamarensis* from the supposed Miocene of the Yellowstone; it resembles *S. carbonensis* rather than the Florissant species, having the cordate base and rounded sides. Heer,§ from beds supposed to be Miocene at Asakak, Greenland, describes a *Smilax lingulata;* it is a narrow leaf quite unlike the Florissant plant, resembling, in fact, the living *S. laurifolia* L.

A much more ancient plant assigned to this genus is **Smilax**

* Am. Journ. Sci. 45: 171. 1843.

† Ann. Mus. Marseille, 12: pl. 1. (1908.)

‡ Geol. Yellowstone Nat. Park, pl. CXXI, f. 3, 4.

§ Kongl. Sv. Vet. Akad. Handl., 13, no. 2: 15, pl. 1, f. 12 (1874).

Kansana n. n. (*S. undulata* Lesq.,* not of Pohl†), from the Dakota group in Kansas.

Tithymalus phenacodorum sp. nov.

Seed. Length 4.75, breadth 4.25 mm.; short-pyriform, with four sides slightly flattened; surface coarsely irregularly wrinkled.

Five miles southeast of mouth of Pat O'Hara Creek, Clark's Fork Basin, Wyoming; above red-banded beds, in strata supposed to be older than the Wasatch, though formerly classed

FIG. 2. Seeds of *Tithymalus:* A. *T. phenacodorum*, side view. B. *T. phenacodorum*, from above. C. *T. Willistoni*, side view.

with that group. Type in American Museum of Natural History; collected by Mr. W. Stein, along with numerous remarkable land shells, of the genera *Protoboysia*, *Boysia*, *Vitrea*, *Thysanophora*, *Pyramidula*, *Gastrodonta* and *Oreohelix*.

Compared with the seeds of *T. Willistoni* Cockerell,‡ from the Loup Fork Beds of Long I., Kansas, the new species is distinctly longer, while the depressions between the rugæ are more irregular and less definitely in longitudinal series. A quite similar but still longer seed is that of the living Mexican **Tithymalus campestris** n. n. (*Euphorbia campestris* Cham. & Schl., 1830), the seed of which is well figured by Millspaugh, Botanical Gazette, XXV (1898): 25. In *T. campestris*, however, the rugae are more labyrinthiform than in *T. phenacodorum*.

Extremely hard and dense seeds, such as those of *Tithymalus*, are readily fossilized where ordinary vegetation decays and disappears. It is probable that careful search will reveal them in other Tertiary strata. I add a figure of *T. Willistoni*, as it has not been figured.

* Fl. Dakota Group: 39 (1892).

† Pohl, A. DC. in D. C., Mon. Phan. 1: 135.

‡ Torreya 9: 119. 1909.